

REMARKS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Upon entry of the foregoing amendments, claims 26-48 and new claims 49-51 will be pending in this application.

Claim 26 is amended by more particularly defining the porous inorganic carrier particles according to the embodiment as described on page 3, fifth paragraph.

Claim 26 is also amended by physically incorporating the definition of retention factor R, previously incorporated by reference. The definition is found in the specification on page 2, second paragraph and page 10, under “vi) Leaching”.

Claim 34 is amended in view of the inclusion of this subject matter in claim 26. The amended claim 34 and the newly added claims 50 and 51 are directed to particular embodiments within the scope of original claim 34.

Claim 35 is amended to recite representative types of liquid-based media which are described throughout the specification, such as pages 4-8.

Claim 44 is amended to delete the term “derivatives.” This cosmetic change now generically refers to isothiazolinones, a known class of biocide. New claim 49 is directed to the embodiment of the invention wherein the isothiazolinone is one or more of the compounds mentioned on page 3.

Claims 45 and 46 are amended to physically incorporate the conditions of UV exposure, previously incorporated by reference. The test conditions are those described on page 23, lines 4 to 8.

Accordingly, no new matter is added.

The rejection of claims 26-48 under 35 USC 112, second paragraph for the reasons set forth on page 2 of the Office Action is overcome by the above amendments.

Insofar as the rejection refers to “activation” in claim 29, the rejection is traversed. An “activated micropore system” is not indefinite but has a well understood meaning in the field of porous materials. For example, an “activated micropore system” includes the embodiment as described on page 2, lines 27 to 28, namely, heating the material. Further guidance is given in the examples. As further described on page 2, at lines 28-30, activation is understood to implicate preferential adsorption of the biocide materials. One skilled in the art would have no difficulty understanding the metes and bounds of claim 29.

The rejection also seems to refer to identification of the medium in the claims. Claim 35 as amended recites preferred classes of liquid-based media. Claim 26, is directed to a particulate composition and more specific identification of the liquid-based medium would not serve any useful purpose in defining the scope of the embodiment of Applicants' invention to which claim 26 is directed. The particulate composition may be added to any liquid-based medium and would serve as a vehicle for introducing biocide into the liquid-based medium. With regard to claims 38 (surface coating formulation) and claim 41 (tiling, grouting or cement-based formulations) these are each very well known commercially available products.

Accordingly, for the above reasons, all of the grounds for rejection under the second paragraph of 35 USC 112, have been avoided and/or are traversed.

Claims 26-48 stand rejected under 35 USC 112, first paragraph.

The basis for this rejection is not understood. While various embodiments of the invention are disclosed the invention is not limited to exemplified embodiments. Although it is alleged that the parameters are "ambiguous" no parameters are identified. The specification provides detailed disclosure, commensurate in scope with the subject matter claimed, to enable one of ordinary skill in the art to prepare particulate compositions of matter which may be used to introduce a biocide into any liquid medium and has also described, in general and specific terms, the procedures by which such particulate compositions may be used in the products and methods for the embodiments of the pending claims. Applicants do not agree that undue experimentation is required to practice the invention. This is true notwithstanding that the practitioner may be called on to know or determine the effectiveness of a particular biocide. Such information is typically available from the manufacturer or may be easily determined by routine procedures.

Accordingly, the rejection under the first paragraph of 35 USC 112 is respectfully traversed.

It is understood that claims 37 to 42 are acknowledged to be free of the prior art. Accordingly, these claims are now in condition for allowance. If applicants' understanding is not correct identification of any rejections applied to these claims is requested since none are seen in the present Action.

In this regard, it is pointed out that the body of the Action, particularly on page 4, is apparently incomplete with sections of text omitted. Accordingly, the following discussions will provide detailed quotations of the text for each ground of rejection. If the Examiner's version of the Action differs from Applicants, and the application is not otherwise in condition for allowance, a new, non-final Action should be mailed or other appropriate action taken to expedite prosecution.

Claims 26-35 and 43-46 are rejected under 35 USC 102(b) as anticipated by Sumita JP 04-66505 or, in the alternative, as obvious under 35 USC 103(a).

Applicants disagree and traverse this rejection for at least the following reasons.

The porous materials disclosed by Sumita include Zeolites CA-110P, NA-110P, NX-110P (see Table, page 6, of English translation). These are, respectively, zeolites of type 5A, type 4A and type 13X.

There is no disclosure of porous amorphous silica, porous amorphous alumina, porous pseudoboehmites, porous Y-zeolite, porous dealuminated Y-zeolite.

Accordingly, the disclosure of Sumita does not anticipate the subject matters of claims 26-35 and 43-46.

Furthermore, nothing in the disclosure of Sumita suggests that other porous materials would result in any differences in properties or otherwise provide motivation to select different porous materials than the different materials in each class identified in the disclosure.

There is nothing found in the disclosure of Sumita which would lead the practitioner to select porous materials having a retention factor R of at least 0.6. In fact, from the data in Tables I and II on pages 15 and 16 of the specification of this application, it can be understood that type 4A zeolite, specifically exemplified by Sumita, has zero ability to retain biocide under the test conditions specified in the specification of this application.

In this regard, it is noted that on the bottom of page 3 it is stated that "Zeolites adsorbed liquid carrier of the isothiazolone with retention of 1.0" The basis for this statement is not apparent and the Examiner is kindly requested to explain the basis for this statement.

There is also a statement on page 4, that "[h]eat activation was used (page 5)" However, on page 5 no heat activation of a porous carrier material is suggested. At most, page 5 includes reference to culturing the antibacterial material in a petri dish at 28 °C for 1-2 weeks. This is merely a description of normal cultivation conditions and does not represent activation of a micropore system. Of course, as explained above, the zeolite of Sumita is not a Y-zeolite or dealuminated Y-zeolite.

The Action suggests that "Applicant should show the Sumita is not able to provide (undecipherable) isothiazolone identification after incubation [] 0 days [] since the composition are the instant, even though only 2 weeks was used, since microbes were destroyed, we would expect to find the same conditions as the instant claim."

To the extent understood, Applicants submit that Sumita does not establish that the subject matter of the present invention would have been considered in view of Sumita to have been *prima facie* obvious, therefore, no comparative showing is required. In any event, as already explained the data (and, therefore, evidence of record) already establishes that type 4A zeolite, representative of the zeolites of the reference, do not have a retention factor for isothiazolone biocides.

For all of the above reasons, the rejection of claims 26-36 and 43-46 as unpatentable in view of Sumita should be withdrawn.

In the middle of page 4, the following ground of rejection appears:

Claims 26, 31 and 36 are rejected under 35 U.S.C. 102(b) as anticipated by or in the alternative, under 35 U.S.C. 103(a) as obvious over Rollen 093/09 17.

Ere, too the instant isothiocyanates (page) are adsorbed into porous zeolite, and applied as coating and surface treatment liquid compositions for cleaning, painting (page 5). Adsorption capability and retentions are as instantly claimed (page 6, 5.) efficacy was tested 7 days (page 7). Treatment consists of sanitizer liquid application (claim 1), efficacy was from 1 month to 12 months (claim 2). Absent an specification of the materials of the instant claims, in the paint, mud drilling, grouting, sealant, compositions, the instant compositions are seen as non novel in the respect.

The disclosure of Rollen relates to a method for establishing and maintaining a microbiologically clean environment by applying to the various surfaces (e.g., ceilings, walls) of the room a layer of a composition of materials. The composition is porous, open for diffusion and preventing condensation and includes granules of organic or expanded inorganic materials and binders. A layer of water soluble sanitation liquid is spread upon the layer of the porous composition of materials at repeated intervals of time. As the water in the sanitation liquid has evaporated sanitizer remains in the pore system of the composition of materials.

From this description and the more detailed description in the document, it will be recognized that there is no disclosure or suggestion of a particulate composition of matter which may be introduced into a liquid-based medium, and which comprises porous inorganic carrier particles having biocide adsorbed within the pore system of the particles.

Rather, according to Rollen a water soluble sanitation liquid is spread onto a layer of a porous coating material, which, although comprising granules of organic or expanded inorganic materials, and binders, does not result in a particulate composition in which biocide is adsorbed in the pore system of porous inorganic carrier particles. In Rollen, the sanitizer remains present in the pores of the coating, not the pores of the expanded inorganic material. In this regard, please refer to item 4 on page 6, wherein the patentee explains that the sanitation liquid is "distributed by means of capillary forces all over the entire surface layer and penetrates into the building material behind." Naturally, if the sanitation liquid and sanitizer therein were adsorbed in the pore system of the expanded inorganic material, it would not be available to penetrate into the building material behind (or underneath) the coating layer containing the granules.

The rejection for lack of novelty as well as obviousness is also improper because it is clear that there is no disclosure or suggestion of a particulate composition of matter which may be used as a vehicle for introducing biocide into a liquid based medium. In Rollen, the granular material with a binder is applied as a porous coating to form a layer adhered to a building surface, e.g., wall, ceiling, etc. This is neither a particulate material nor a vehicle for introducing biocide into a liquid-based medium.

With further regard to the presently amended claims, there is no anticipation or obviousness because there is no disclosure or suggestion of porous inorganic carrier particles chosen from amorphous silicas, amorphous aluminas, pseudoboehmites, Y-zeolites or dealuminated Y-zeolites or mixtures thereof. The disclosure on page 4, lines 10-15, refers to only salts, silicon dioxide gel, starch or derivatives of cellulose, gypsum, alkali silicate, aluminum silicate or fullers earth.

The disclosure of Rollen does not disclose particulate compositions in which biocide is adsorbed within the pore system of porous inorganic carrier particles having a retention factor R of at least 0.6, or of at least 0.8.

Accordingly, the rejection of claim 26 (and any other claim) as unpatentable in view of Rollen et al should be withdrawn.

The following rejection is found on the bottom of page 4 of the Action:

Claims 26, 35 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by P 0353075.

See pages 19, 20: treated/activated particles of the instant claims are shown as retaining 30% of the instant biocidal material. Claims 13-15 show the particle formulation in liquid vehicles and water.

This rejection is not understood. For example, although reference is made to pages 19 and 20, EP 0353075 has only pages 1-14.

There is also a reference to claim 13, however, claim 13 describes use of an amorphous silica having certain values for surface area, pore diameter, oil absorption and weight mean particle size to provide a physically stable aqueous liquid detergent with improved non-corrosive properties and satisfactory viscosity. There is nothing in claim 13 which would defeat the novelty of claim 26 or claim 35 (or any other claim).

This reference has absolutely no disclosure of a particulate composition comprising porous amorphous silica having biocide adsorbed within the pore system.

The rejection of claim 26, 35 (and any other claim) as anticipated by EP 0353075 should be withdrawn.

Claims 26-34 are rejected under 35 USC 102(b) as anticipated by Knight et al, U.S. 5,693,344.

Applicants respectfully disagree and traverse this rejection for at least the following reasons.

Knight et al disclose a composition suitable for killing pests. The composition is in the form of powdered crystals and a fragrance. The fragrances may act as insecticides. However, there is no disclosure of porous inorganic carrier particles having biocide adsorbed in the pore system thereof with a retention factor, R, of at least 0.6, or of at least 0.8. There is no disclosure of amorphous silica, amorphous alumina, pseudoboehmite, zeolite-Y or dealuminated zeolite-Y.

Furthermore, a careful review of the disclosure of Knight et al does not find any support for a conclusion that the fragrance is adsorbed in the pore system of the crystalline particles. Quite the contrary, since the function of the crystalline particles is to, after puncturing the exoskeleton of the pests, is to "absorb the vital body fluids." (*See*, e.g., col. 3, lines 5-8.) One skilled in the art would understand that body fluids are largely aqueous whereas fragrances are largely organic, non-aqueous. Therefore, there is no evidence of fragrance being adsorbed in the pore system of crystalline particles.

Accordingly, the rejection of claims 26-34, 36 and 43, as anticipated by Knight et al should be withdrawn.

Finally, claims 26-35, 43-46 stand rejected under 35 USC 102(e) as anticipated by Beall et al, U.S. 5,730,996.

Applicants respectfully disagree and traverse this rejection for at least the following reasons.

Beall et al disclose layered materials, defined in column 4, lines 60-63, as supports for pesticides. The definition refers to smectite clays.

Therefore, Beall et al does not anticipate the pending claims. Beall does not disclose a particulate comostion in which biocide is adsorbed within the pore structure of porous amorphous silica, porous amorphous alumina, pseudoboehmites, Y-zeolites or dealuminated Y-zeolites.

The rejection of claims 26-35 and 43-46 as anticipated by Beall et al should be withdrawn.

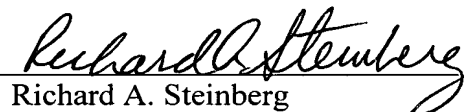
In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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APPENDIX: VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

26. (Amended) A particulate composition of matter for use as a vehicle for introducing biocide into a liquid-based [**media**] medium comprising porous inorganic carrier particles which is at least one of amorphous silicas, amorphous aluminas, pseudboehmites, Y-zeolites, dealuminated Y-zeolites or mixtures of two or more thereof having biocide adsorbed within the pore system thereof and having a retention factor R, determined from the equation $R = A/P$, where A represents the percentage active ingredient by weight remaining in the pore system after contacting a sample consisting of a homogenised mixture of 0.75 g biocide and 2.25 g of carrier particles with 1000 ml of water for 90 minutes and P represents the potency as defined by the Minimum Inhibition Concentration in mg of active ingredient per liter of the biocide determined with respect to the reference microorganism *Aureobasidium pullulans*, of at least 0.6.

34. (Amended) A composition as claimed in claim 26 in which the inorganic carrier particles are [**constituted by a material selected from a group consisting of** amorphous silicas, with, optionally, Y-zeolites, dealuminated Y-zeolites [**and**] or mixtures of two or more of these.

35. (Amended) A liquid-based medium incorporating the particulate composition as claimed in claim 26, said liquid medium comprising a surface coating composition, a surface cleaning composition, a sealant composition, a tiling composition, a grouting composition and a drilling mud.

44. (Amended) A method as claimed in claim 43 in which the biocide is an isothizolone [**isothiazolones, derivatives of isothiazolones and mixtures thereof**].

45. (Amended) A method as claimed in claim 43 in which the particles used are effective to reduce degradation of the biocide to such an extent that at least 60% of the biocide is detectable when the biocide-containing particles are subjected to UV exposure using a 500 W high pressure mercury/tungsten lamp operating at a temperature of 50 °C and a relative humidity of 50% and/or thermal ageing for at least 40 days in an incubator at 60 °C [**under the conditions defined hereinbefore**].

46. (Amended) A method as claimed in claim 43 in which the particles used are effective to reduce degradation of the biocide to such an extent that at least 80% of the biocide is detectable when the biocide-containing particles are subjected to UV exposure using a 500 W high pressure mercury/tungsten lamp operating at a temperature of 50 °C and a relative humidity of 50% and/or thermal ageing for at least 40 days in an incubator at 60 °C [under the conditions defined hereinbefore].

End of Appendix